Hypertension

Maryam Rahbar

Nephrolosit

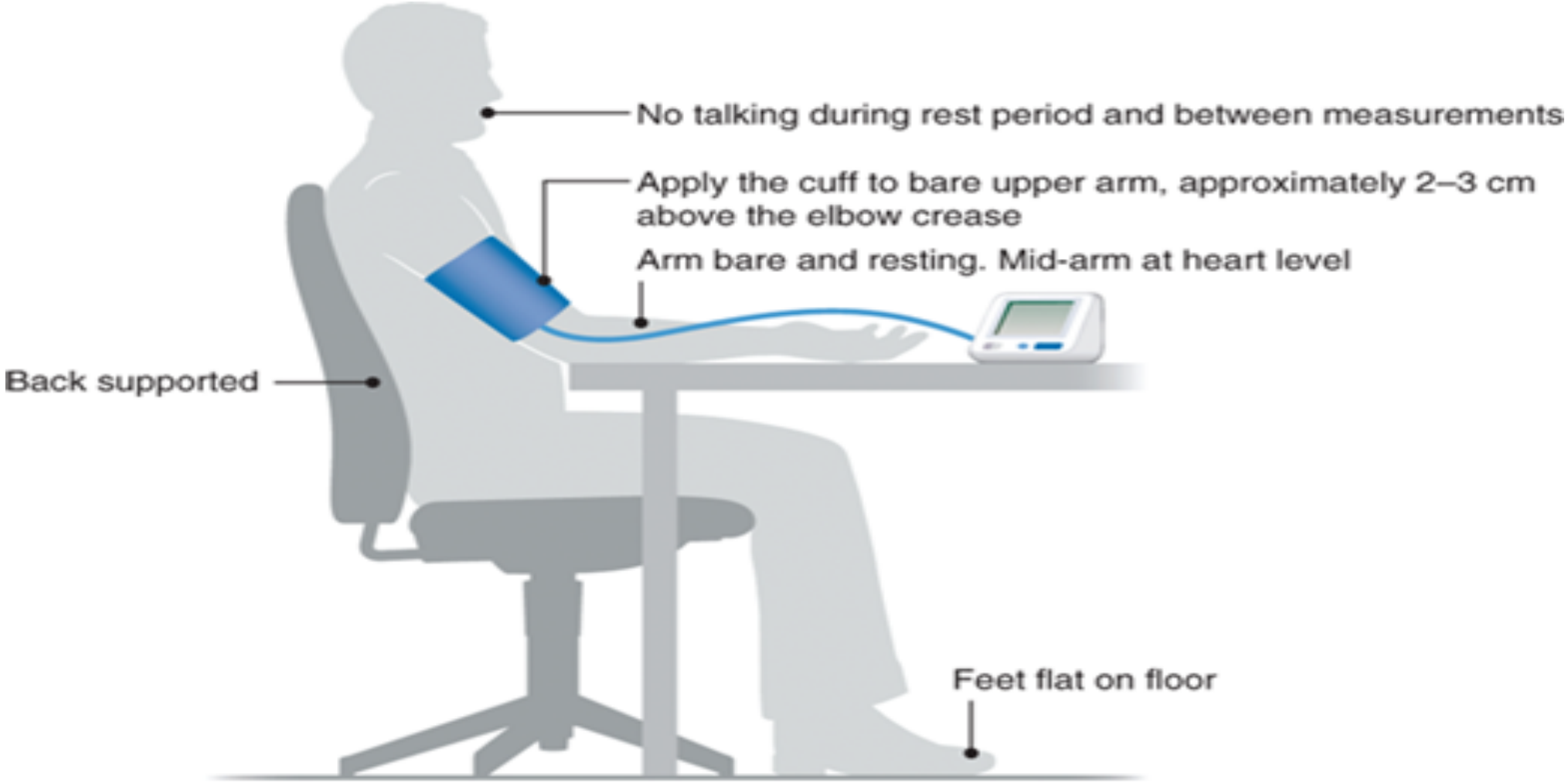
Tums

Definition

- *AMERICAN COLLEGE OF CARDIOLOGY* (ACC)/*American Heart ASSOCIATION*(AHA) were suggested:
- Normal Blood pressure : systolic <120 mmHg and diastolic <80
- Elevated Blood pressure: systolic 120 to129mmHg and diastolic <80mmHg
- Hypertension:
- *Stage 1-systolic 130 to139mmHg or diastolic 80 to89*
- *Stage 2-systolic at least 140 mmHg or diastolic at least 90mmHg*

European guidance

-



Source: Longo D, Fauci A, Kasper D, Hauser S, Jameson JL, Loscalzo J, Holland S, Langford C: Harrison's Principles of Internal Medicine, 22nd Edition

Definition of hypertension based on blood pressure measurement strategy

Definition of hypertension based on blood pressure measurement strategy

SBP/DBP	Clinic	SMBP	Daytime ABPM	Nighttime ABPM	24-hour ABPM
ACC/AHA guidelines 2025[1]	≥130/80	≥130/80	≥130/80	≥110/65	≥125/75
ESC guidelines 2024[2]	≥140/90	≥135/85	≥135/85	≥120/70	≥130/80

ABPM: ambulatory blood pressure monitoring; ACC/AHA: American College of Cardiology/American Heart Association; DBP: diastolic blood pressure; ESC: European Society of Cardiology; SBP: systolic blood pressure; SMBP: self-measured blood pressure.

Title:

Corresponding values of SBP/DBP for clinic, HBPM, daytime, nighttime, and 24-hour ABPM measurements

Corresponding values of SBP/DBP for clinic, HBPM, daytime, nighttime, and 24-hour ABPM measurements

Clinic	HBPM	Daytime ABPM	Nighttime ABPM	24-hour ABPM
120/80	120/80	120/80	100/65	115/75
130/80	130/80	130/80	110/65	125/75
140/90	135/85	135/85	120/70	130/80
160/100	145/90	145/90	140/85	145/90

SBP: systolic blood pressure; DBP: diastolic blood pressure; HBPM: home blood pressure monitoring; ABPM: ambulatory blood pressure monitoring.

References:

- White coat hypertension- is defined as blood pressure that is consistently elevated by office readings but dose not meet diagnostic out of office
- Masked hypertension- is defined as blood pressure that is consistently elevated by out of office measurements but dose not meet the criteria for hypertension based upon office reading

Prevalence of hypertension

•

Primary hypertension(Essential)

- Blood pressure(BP)= cardiac out put(CO)× vascular resistance
- Primary factors determining the blood pressure are the systemic nervous system , the renin –angiotensin-aldosterone system and plasma volume (largely mediated by the kidney)

Pathogenesis essential hypertension

- Is poorly understand but more genetic(polygenic) and environmental factors
- Risk factors for essential hypertension :Age, obesity, family history ,race , reduced nephron number ,high sodium diet , physical inactivity ,insufficient sleep , noise and air pollution

Secondary hypertension

- Secondary hypertension should be considered during the evaluation of all patient with new –onset hypertension
- Who have
- -Treatment resistant hypertension
- -Abrupt worsening of hypertension
- -Age less than 30 years with no family history and no obesity
- -Inappropriate target organ damage for level BP
- - lab test such as unprovoked hyperkalemia, proteinuria

LAB TEST

- Recognize target organ damage
- Identification secondary causes of hypertension including kidney disease and primary aldosteronism
- Recognize comorbid condition including diabetes mellitus and hyper lipidemia
- Assist in optimal choice of antihypertensive drug therapy

- FBS , BUN, CR , Na ,K ,Ca , ph , HBA1C,
- Uric Acid ,TG , Cholesterol , U/A , Alb/creat
- TSH, T4
- CBC
- ECG
- sonography

Secondary hypertension

- Primary kidney disease
- Primary aldosteronism
- Renovascular hypertension
- Obstructive sleep apnea
- Pheochromocytoma
- Cushings syndrome
- Hyperthyroidism ,hypothyroidism ,hyperparathyroidism
- Coarctation of aorta

Primary kidney disease

- Elevated serum creatinine concentration
- Abnormal urinalysis

Primary aldosteronism

- Unexplained hypokalemia with urinary potassium wasting however, more than one-half of patients are normokalemia

Renovascular hypertension

- Unexplained creatinine elevation and/or acute and persistent elevation in serum creatinine of at least 50% after administration of ACE inhibitor , ARB ,or renin inhibitor
- Moderate to sever hypertension in a patient with diffuse atherosclerosis ,a unilateral small kidney, or asymmetry in kidney size of more than 1.5 cm that cannot be explained by another reason
- Moderate to sever hypertension in a patients with recurrent episodes of flash pulmonary edema
- Onset of hypertension with BP>160/100 mmHg after age 55 years
- Systolic or diastolic abdominal bruit(not very sensitive)

Pheochromocytoma

- Paroxysmal elevations in blood pressure
- Triad headache (usually pounding) , Palpitation , and sweating

Obstructive sleep apnea

- Common in patients with resistance hypertension, particularly if over weight or obese
- Loud snoring or witnessed apneic episodes
- Daytime somnolence , fatigue ,and morning confusion

Cushings syndrome

- Cushingoid facies ,central obesity ,proximal muscle weakness ,and ecchymoses
- May have a history of glucocorticoid use

Coarctation of aorta

- Hypertension in the arms with diminished or delayed femoral pulses and low or unobtainable blood pressure in the legs

Hyperthyroidism ,hypothyroidism ,hyperparathyroidism

- Symptoms of hypo or hyperthyroidism
- Abnormal TSH
- Elevated serum calcium

Major causes of secondary hypertension

- Oral contraceptive
- Nonsteroidal anti-inflammatory agents
- Antidepressants including tricyclic, selective serotonin uptake inhibitors, monoamine oxidase inhibitors
- Corticosteroids
- Decongestants
- Erythropoietin
- Cyclosporine or tacrolimus

Herbal

- Arnia
- Ephedra
- Ginseng
- Guarana
- licorice

- Thanks for your attension